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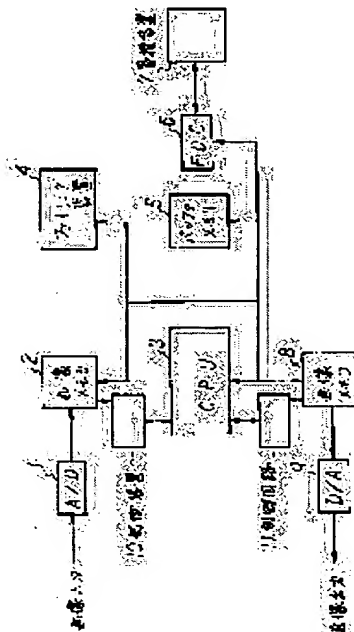
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(54) LIST DISPLAY DEVICE IN IMAGE FILING DEVICE

(57)Abstract:

PURPOSE: To provide a device to perform the list screen display of plural images for the retrieval of a recorded image and to improve the resolution of a list display screen in a still picture filing device.

CONSTITUTION: Inputted image data is stored in image memory 2, and one dot out of four dots is validated and reduced in a horizontal direction from stored data by a CPU 3, and when a vertical direction shows the image data in field display, one line is generated by taking a mean value from the filed at every two lines, and reduced data is generated, and when the vertical direction shows frame display, the reduced data is generated similarly by taking the mean value at every two lines setting one field as a corresponding field, and the data reduced by such procedure is accumulated in memory 8 by conforming to an original image, and when retrieval is performed, plural reduced window screens are list-displayed by frame scan.



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CLAIMS

[Claim(s)]

[Claim 1] In the picture file equipment which accumulates image data, chooses one from two or more accumulated image data, and is displayed A means to confirm 1 dot horizontally from the data remembered to be a means to memorize the inputted image data at 4 dots, and to create cutback data, In being the image data of a field display perpendicularly The means which takes the average every two lines from the upper part line of the scanning line, creates one line, and is made into the line for the object for the even number fields, and the odd number fields for every line from the field concerned, In being the image data of a frame display perpendicularly The means which takes the average every two lines from the upper part line of the scanning line, creates one line, and is made into the line for the object for the even number fields, and the odd number fields for every line by making only the piece field into the field concerned, The list display in the picture file equipment which consists of a means which indicates said two or more reduced child screens by list in frame scanning on the occasion of a means to make cutback data correspond with a subject-copy image, and to store them, and retrieval.

[Translation done.]

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DETAILED DESCRIPTION

[Detailed Description of the Invention]

[0001]

[Industrial Application] This invention relates to the list display in static-image file equipment.

[0002]

[Description of the Prior Art] usually, on the property, although referred to titles, such as a file name, like retrieval of the conventional text file in retrieval of the file equipment of an image, since it is hard to refer only to a file name, the method of seeing an image directly and searching it is also proposed. For example, there were some which thin out data 1/2x1/2 (cutback), and display them like "the registration retrieval system in electronic file equipment" of JP,63-102462,A. In this Prior art, even if it was performing the frame display by the list screen display, the same data as both even number and the odd number field were used.

[0003]

[Problem(s) to be Solved by the Invention] When indicating by list and searching an image with the above-mentioned Prior art, in order to make [many] the screen of a list, infanticide (reduction percentage) had to be made high, the image deteriorated remarkably, and there was a trouble of being hard to distinguish an image.

[0004] This invention was made in view of the above actual condition, is doubling the resolution of the image of the perpendicular direction of a cutback image, and offers the display which make the image of Ushiro who culled out easy to distinguish.

[0005]

[Means for Solving the Problem] A means to memorize the inputted image data in order to solve the above-mentioned trouble, A means to confirm 1 dot horizontally from the memorized data at 4 dots, and to create cutback data, and in being the image data of a field display perpendicularly A means to take an average value every two lines, to create one line, and to create cutback data from the field concerned, and in being a frame display perpendicularly An average value is taken every two lines like the above by making the piece field into the field concerned, and it has a means to create cutback data, a means to make cutback data correspond with a subject-copy image, and to store them, and a means to perform a list display for said two or more reduced child screens in frame scanning on the occasion of retrieval.

[0006]

[Function] An image can be made easy to distinguish by doubling the resolution of the perpendicular direction of the image operated on a curtailed schedule according to the above-mentioned configuration.

[0007]

[Example] Although the concrete example of this invention is explained hereafter, television of the NTSC system which is the common indicating equipment which has relation in this invention is explained. Like drawing 8 , with NTSC system, after the scanning line scans the bottom from on a screen even by those with 525, and 1-262.5 (continuous line), even 263-525 are scanned from a top once again (broken line). This two scan is called field scanning, respectively. 30 images (frame) with which field scanning of a continuous line and a broken line was united are displayed in 1 second. If these are made into drawing, it will become like Screens 21 and 22 of drawing 9 , and the scanning line of 2 field doubling ***** will be displayed.

[0008] Drawing 1 is the block diagram of this invention. In drawing 1 , A/D conversion of the inputted image information is carried out by A/D converter 1 after analog signal processing, and it is incorporated in an image memory 2. An image memory 2 is controlled by the control unit 10. The incorporated image information is thinned out by CPU3 (cutback), is processed, and is sent to buffer memory 5. On the other hand, it is filed with a subject-copy image as an image file, and is filed by filing equipment 4 as compressed data. The cutback data incorporated by buffer memory 5 are recorded as index data of the image data filed in are recording equipment 7 through control devices, such as FDC6 (floppy disk controller).

[0009] On the other hand, the cutback data by which reading appearance was carried out from are recording equipment 7 are once read into buffer memory 5 through FDC6, and are written in the address with which the image memory 8 was specified. An image memory 8 is controlled by the control unit 11. Since cutback data are used as the list display screen at the time of retrieval, it is read according to the one or more contents of retrieval, and the screen for a list display shown in drawing 3 is constituted. From an image memory 8, D/A converter 9 is changed by through analog data, and each reduced screen of an even number field screen and an odd number field screen is displayed.

[0010] In case analog signal processing of the inputted picture signals (composite signal etc.) is carried out, the field is distinguished and the image data digitized from A/D converter 1 is incorporated to an image memory 2 for every line. Although infanticide is performed by reading data required for CPU3 from an image memory 2 with reduction percentage, when setting level and a perpendicular direction to one fourth, for example to a subject-copy image, level and a perpendicular direction are incorporated every 4 dots. This data is thinned out, and it writes in buffer memory 5 as data, and accumulates in are recording equipment 7 as index data of image data through FDC6. (The detail about thinning out is mentioned later) It is recorded on are recording equipment 7 again that a subject-copy image also corresponds with a cutback image, respectively. Means, such as picture compression, may be used for record of a subject-copy image. At the time of retrieval of an image, the cutback data as an index are first read to buffer memory 5 through FDC6 from are recording equipment 7. The write-in location to an image memory 8 is specified by the retrieval number of cases, and an infanticide screen is written in. The data written in the image memory 8 are displayed as an analog signal by D/A converter 9. It is reading of the index data from are recording equipment, and a thing situation is shown in drawing 2 . At this time, from an image memory 8, the data of odd number and the even number field are read, and as shown in drawing 3 , it is displayed on a display as a list screen, respectively. If an image is chosen from a list screen, again, from are recording equipment 7, the subject-copy image corresponding to the index screen will be read, and it will be written in and displayed on an image memory 8 through FDC6. ***** [the number of an image memory and control units / one] on circuitry.

[0011] Perpendicular direction: Divide into two pixel configurations and explain.

[0012] In the case of the image data of a frame display, paying attention to the perpendicular direction of a subject-copy image, it reads into CPU3 by reading two lines from the field concerned as one unit at CPU3 in the case of the image data of a field

display, and making two lines into a unit, using only the piece field as the field concerned. Since it is the image data of a field display when a pixel configuration is 768x240 dots, two lines is read into (the line where the round mark was located in a line), and CPU as one unit like the subject-copy image of drawing 4, data processing of the two lines is carried out, and one line which consisted of the averages of two lines is created. This equalized one line constitutes one line of one screen of 1/16 of reduced screens like the list screen of drawing 4. (Since it is a known technique, equalization is not described especially.) the list display screen — the frame display screen sake — a subject-copy image — for example, the screen which consisted of the even number fields altogether is expressed on both the screens of even number and the odd number field as a chart screen.

[0013] Moreover, as shown in the subject-copy image of drawing 5, when a pixel configuration is the image data of a frame display of 768x480 dots, by making only the piece field into the field concerned (in this case, for example, even number field), two lines is read into (the line where the round mark was located in a line), and CPU as one unit, data processing of the two lines is carried out, and one line which consisted of the averages of two lines is created. This one line constitutes one line of one screen of 1/16 of reduced screens like the list screen of drawing 5. Infanticide of a horizontal dot is omitted in drawing 4 and drawing 5. Moreover, a frame display may constitute cutback data from the odd number field, and the odd number field may serve as a subject-copy image in a field display.

[0014] Horizontal direction: Since it becomes effective [1 dot per 4 dots] horizontally like the subject-copy image of drawing 6 to one line which took the average every two lines of the above-mentioned perpendicular direction, it becomes one fourth of reduced screens horizontally. The list screen of drawing 6 is drawing reduced and displayed on horizontal directions 1/4.

[0015] Moreover, it is good also as simultaneous equalization of horizontal and a perpendicular direction which takes the average and is made into 1 dot to the field concerned like [dots / of vertical lines of two lines, and 4 dots of horizontal directions / 8] the subject-copy image of drawing 7.

[0016]

[Effect of the Invention] According to this invention, there is the following effectiveness.

[0017] (a) By displaying the reduced image on each field screen, vertical resolution becomes twice the conventional cutback image, and the list screen of image retrieval becomes legible.

(b) Since data are searched with a list screen, it is not necessary to input a file name at the time of are recording of data, and playback.

[0018] (c) Since the content of immediate data can be seen and searched, it can work smoothly by being hard to commit a retrieval mistake.

[0019] (d) The key for an alphabetic character input becomes unnecessary, and circuitry is simplified.

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DESCRIPTION OF DRAWINGS

[Brief Description of the Drawings]

[Drawing 1] It is the block diagram of the picture file equipment concerning this invention.

[Drawing 2] They are the are recording equipment concerning this invention, and the block diagram of the periphery.

[Drawing 3] It is drawing showing the list screen concerning this invention.

[Drawing 4] It is drawing for explaining the image processing to which the pixel configuration concerning this invention equalizes the perpendicular direction of the image of 768x240 dots.

[Drawing 5] It is drawing for explaining the image processing to which the pixel configuration concerning this invention equalizes the perpendicular direction of the image of 768x480 dots.

[Drawing 6] It is drawing for explaining the image processing which performs horizontal infanticide of the subject-copy image concerning this invention.

[Drawing 7] It is drawing for explaining the image processing which performs the equalization of the horizontal direction and perpendicular direction of a subject-copy image concerning this invention.

[Drawing 8] It is drawing showing the configuration of the scanning line of general NTSC system.

[Drawing 9] It is drawing showing the relation between a common frame image and a field image.

[Description of Notations]

2 Image Memory

3 CPU

4 Filing Equipment

7 Are Recording Equipment

8 Image Memory

[Translation done.]

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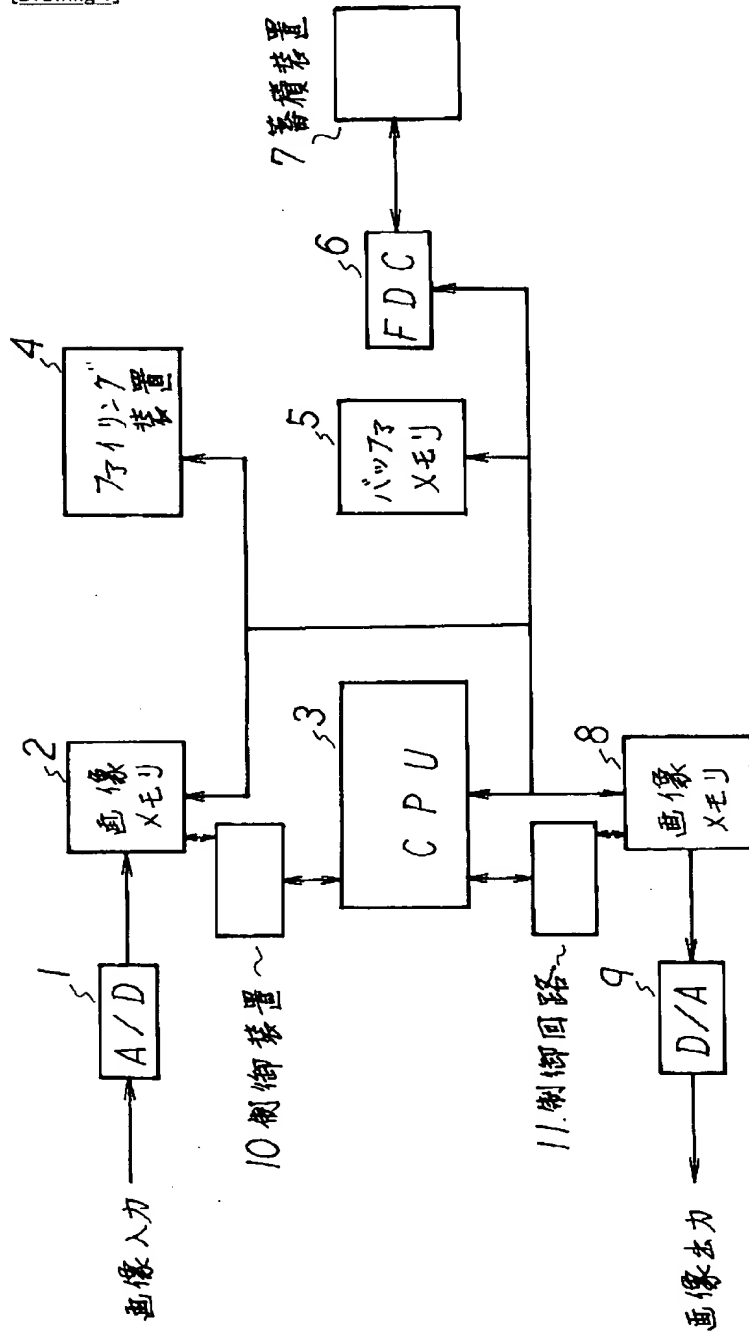
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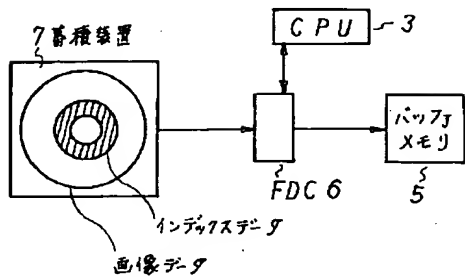
3.In the drawings, any words are not translated.

DRAWINGS

[Drawing 1]



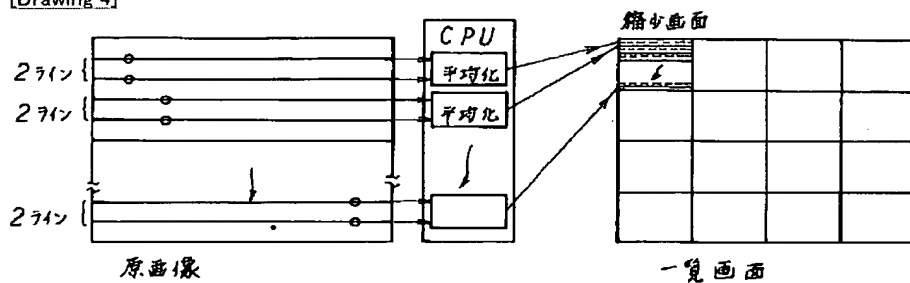
[Drawing 2]



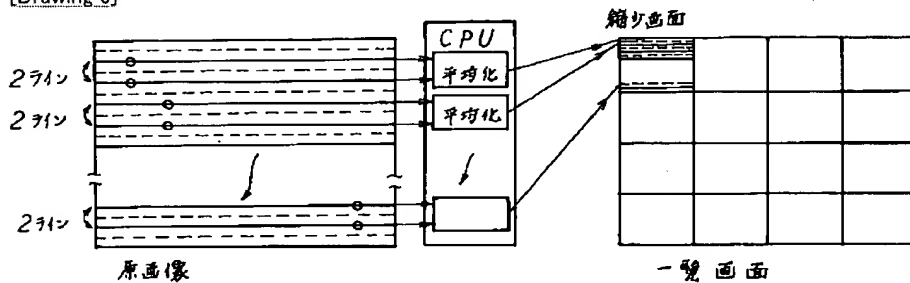
[Drawing 3]

| | | | |
|----|----|----|----|
| 1 | 2 | 3 | 4 |
| 5 | 6 | 7 | 8 |
| 9 | 10 | 11 | 12 |
| 13 | 14 | 15 | 16 |

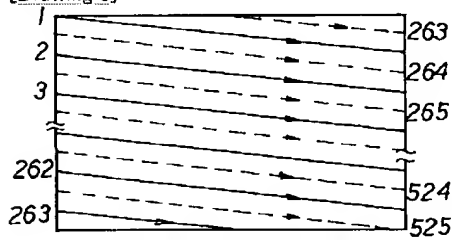
[Drawing 4]



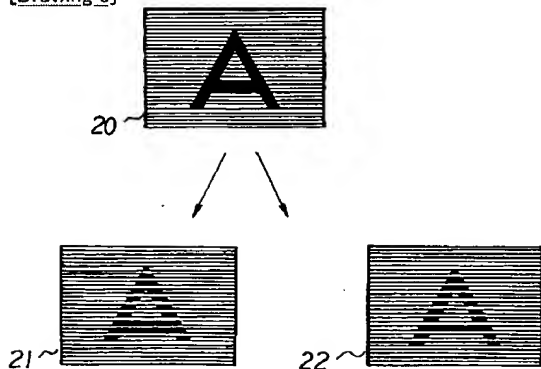
[Drawing 5]



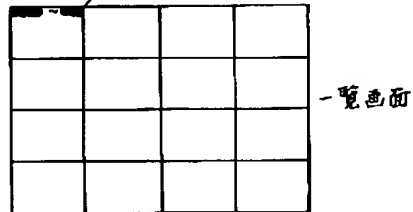
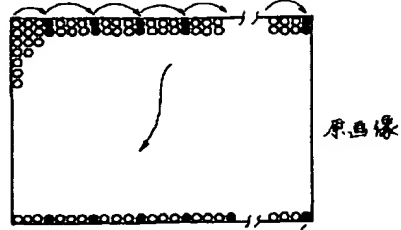
[Drawing 8]



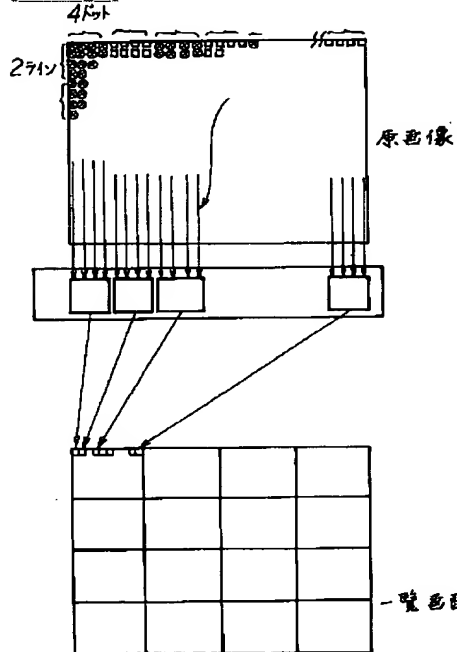
[Drawing 9]



[Drawing 6]



[Drawing 7]



[Translation done.]

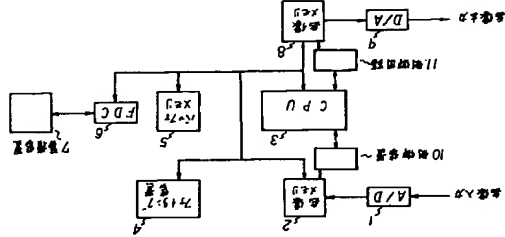
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(54)【発明の名称】 画像ファイル装置における一覽表示装置

(57)【要約】

【目的】 静止画ファイル装置において、記録された画像の検索用に複数の画像を一覧画面表示するものであって、一覽表示画面の解像度を向上させる。

【構成】 入力された画像データを画像メモリ2に記憶し、CPU3において記憶されたデータから水平方向は4ドットの内1ドットを有効とし縮小し、垂直方向がファイルド表示の画像データの場合には当該ファイルドより2ライン毎に平均値を取り1ラインを作成し縮小データを作成し、垂直方向がフレーム表示の場合にはファイルドを当該ファイルドとして上記と同様に3ライン毎に平均値を取り縮小データを作成し、これらの手順により縮小されたデータを画像メモリ8に原画像と対応させて蓄積し、検索に際して前記縮小した複数の画面をフレーム走査にて一覽表示を行なう。



【特許請求の範囲】

【請求項1】 画像データを蓄積し、蓄積した複数の画像データより1つを選択し、表示する画像ファイル装置において、

入力された画像データを記憶する手段と、

記憶したデータから水平方向は4ドットに1ドットを有効とし、縮小データを作成する手段と、

垂直方向がファイルド表示の画像データの場合には、当該ファイルドより走査線の上方ラインから2ライン毎に平均値を取り1ラインを作成し、1ライン毎に偶数ファイルド用、奇数ファイルド用のラインとする手段と、

垂直方向がフレーム表示の画像データの場合には、ファイルドのみを当該ファイルドとして、走査線の上方ラインから2ライン毎に平均値を取り1ラインを作成し、1ライン毎に偶数ファイルド用、奇数ファイルド用のラインとする手段と、

縮小データを、原画像と対応させて蓄積する手段と、検索に際して前記縮小した複数の画面をフレーム走査にて一覽表示する手段とからなる画像ファイル装置における一覽表示装置。

【発明の詳細な説明】

【0001】

【産業上の利用分野】 この発明は静止画画像ファイル装置における一覽表示装置に関するものである。

【0002】

【従来の技術】 通常、画像のファイル装置の検索に当たっては、従来の文書ファイルの検索と同様にファイル名等のタイトルで検索を行うが、その性質上、ファイル名だけでは検索しにくいという問題点を直接みて検索する方法も提案されている。例えば特開昭63-102462号の“電子ファイル装置における登録情報検索方式”のようデータに1/2×1/2間引き(縮小)表示するものがあつた。この従来の技術では一覽画面表示でフレーム表示を行つていても、偶数、奇数ファイルのどちらにも同じデータを用いていて、

【0003】

【発明が解決しようとする問題点】 上記従来の技術では、画像を一覽表示して検索する際、一覽の画面を多くするためには間引き(縮小)を高くしなくてはならず、画像が著しく劣化し、画像が判別しにくいという問題点があつた。

【0004】 本発明は以上のような事情を鑑みてなされたもので、縮小画像の垂直方向の画像の解像度を倍にするので、間引きを行った後の画像の判別をし易くする表示装置を提供する。

【0005】

【課題を解決するための手段】 上記の問題点を解決するため、入力された画像データを記憶する手段と、記憶したデータから水平方向は4ドットに1ドットを有効とし、縮小データを作成する手段と、垂直方向がファイル

ド表示の画像データの場合には、当該ファイルドより2ライン毎に平均値を取り1ラインを作成し、縮小データを作成する手段と、垂直方向がフレーム表示の場合には、片ファイルドを当該ファイルドとして、上記と同様に2ライン毎に平均値を取り、縮小データを作成する手段と、検索に際して前記縮小した複数の画面をフレーム走査にて一覽表示を行なう手段を備える。

【0006】

【作用】 上記構成によれば、間引きした画像の垂直方向の解像度を倍にすることで画像を判別し易くすることができる。

【0007】

【実施例】 以下、本発明の具体的な例を説明するが、本発明に関連のある一般的な表示装置であるNTSC方式のテレビについて説明しておく。図8のようにNTSC方式では走査線が525本あり、1～262、5本迄で画面の上から下までを走査した(実線)後に、もう一度263～525本までを上から走査する(虚線)。この2回の走査をそれぞれフィールド走査という。実線と虚線のフィールド走査をあわせた画像(フレーム)が1秒間に30枚表示される。これらを図にすると図1の画面21、22のようになり、2フィールド合わせて全ての走査線が表示される。

【0008】 図1は本発明のブロック図である。図1において、入力された画像情報はアナログ信号処理部、A/D変換器1によりA/D変換され、画像メモリ2に取り込まれる。画像メモリ2は制御装置10により制御される。取り込まれた画像情報はCPU3により間引き(縮小)処理されてマップメモリ5に送られる。一方、画像ファイルとして原画像のまま、あるいは圧縮データとしてフアイリング装置4にファイルされる。マップメモリ5に取り込まれた縮小データは、FDC6(フロッピーディスクコントローラ)等の制御装置を介して蓄積装置7にフアイリングした画像データのインデックスデータとして記録される。

【0009】 一方、蓄積装置7より読み出された縮小データはFDC6を介してマップメモリ5に一旦読み込まれ、画像メモリ8の指定されたアドレスに書き込まれる。画像メモリ8は制御装置11により制御される。縮小データは検索時の一覽表示画面として使用されるため、検索内容により1つ以上読み込まれて、図2に示す一覽表示用の画面が構成される。画像メモリ8からはD/A変換器9を通してアナログデータに変換されて、偶数フィールド画面、奇数フィールド画面のそれぞれの縮小画面が表示される。

【0010】 入力された画像信号(コンポジット信号等)をアナログ信号処理する際、フィールドを判別し、A/D変換器1からのデジタル化された画像データを1ライン毎に画像メモリ2に取り込む。間引きは縮小率に

